

# ***Orange County Nitrogen and Selenium Management Program***

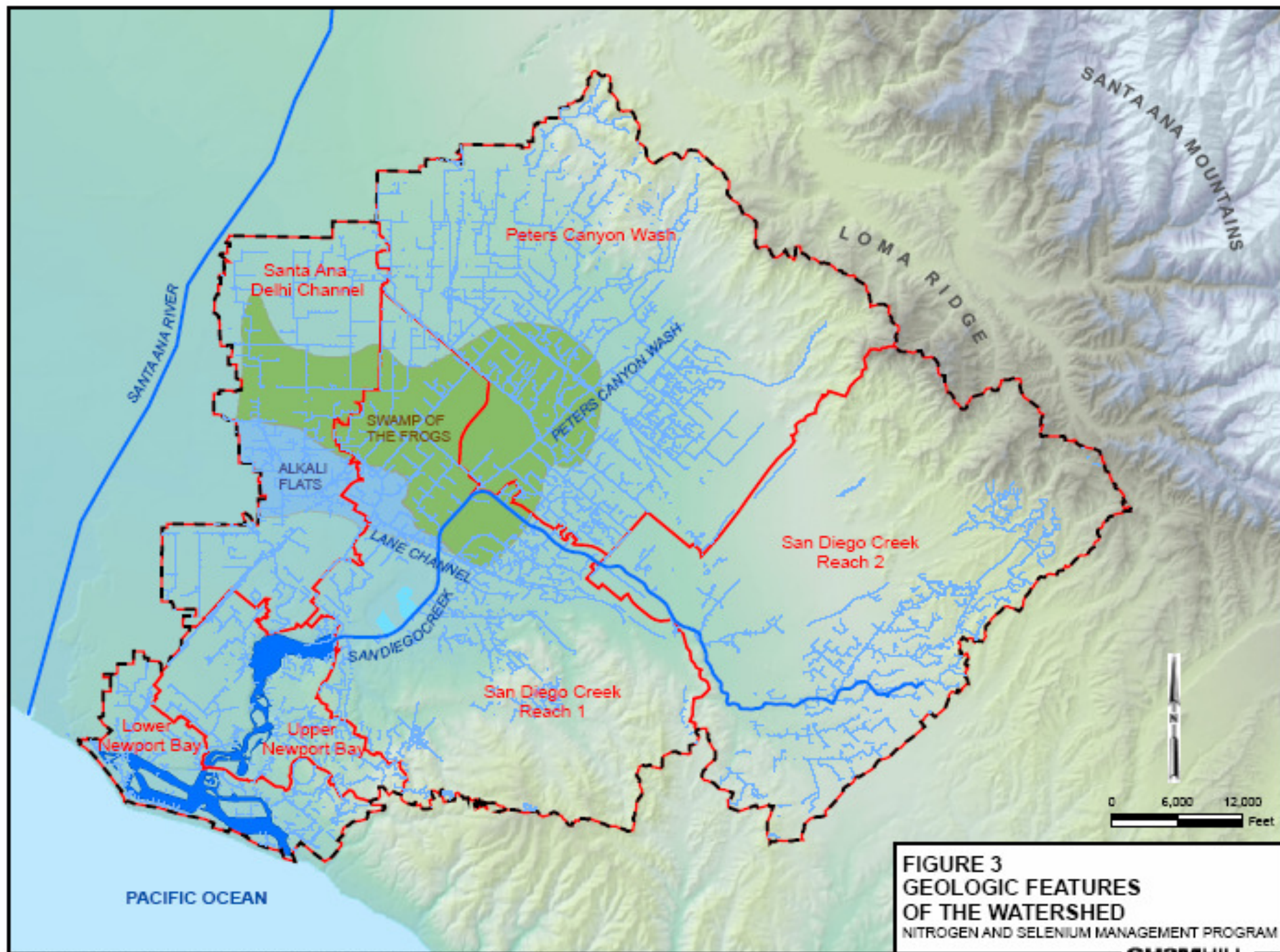


***Karen Ashby, Larry Walker Associates***

***2008 NPS Conference  
May 5-7, 2008***









# Water Quality Impairments

- ◆ Nitrogen (Nutrients)
  - 1998 TMDL and Implementation Plan
  - Annual Load Reduction 50% by 2012
  - Currently Being Re-evaluated
- ◆ Selenium (Metals)
  - June 2002 – EPA Technical TMDL for Toxics
  - Reduction by Flow Tiers
  - No Implementation Plan
- ◆ Future – Others
  - Organochlorine Compounds TMDL



# Short-Term Groundwater and De Minimus Discharges in Newport Bay Watershed (Order No R8-2004-0021)

- ◆ Regulate groundwater due to specific concerns with elevated **N** and **Se** concentrations
- ◆ Included numeric effluent limits
  - Monthly Average – 4 µg/L Selenium
  - Daily Maximum – 8 µg/L Selenium

OR participate in Alternative Strategy





## Alternative Compliance Strategy

- ◆ **Working Group Members** – Interim performance-based effluent limitations
- ◆ **Non-Working Group Members** – Limits
- ◆ Significant broader based benefits for the watershed and address groundwater NPS
- ◆ Regulators, dischargers, and community work together to solve the problem

**Develop a 5 Year Work Plan**



# Five Year Work Plan (July 2005)

Task	2005	2006	2007	2008	2009
<b>Concept Model</b>					
<b>Sources &amp; Loads</b>					
<b>BMPs</b>					
<b>Trading</b>					
<b>N TMDL</b>					
<b>Se SSO</b>					





# NSMP Organization - Structure

NSMP  
Work  
Plan

County of Orange  
Project Manager

## Consultant Team

- RBF (Prime)
- LWA (PM)
- CH2M Hill
- USGS
- USFWS

## Blue Ribbon Panel

- NWRI
- Facilitator
- Experts

## Working Group (20+ Members)

- Dischargers
- Regional Water Board
- Environmental Groups

SWRCB & EPA



# Project Funding

## Now

- ◆ 5-Year Work Plan Implementation
  - \$2.5 Million from Working Group

## Future

- ◆ AbMet Pilot Project
  - \$2 Million – Prop 50 Submittal: 2<sup>nd</sup> Phase
- ◆ Watershed-Wide Planning
  - Prop 84 Submittal and IRWMP Developed





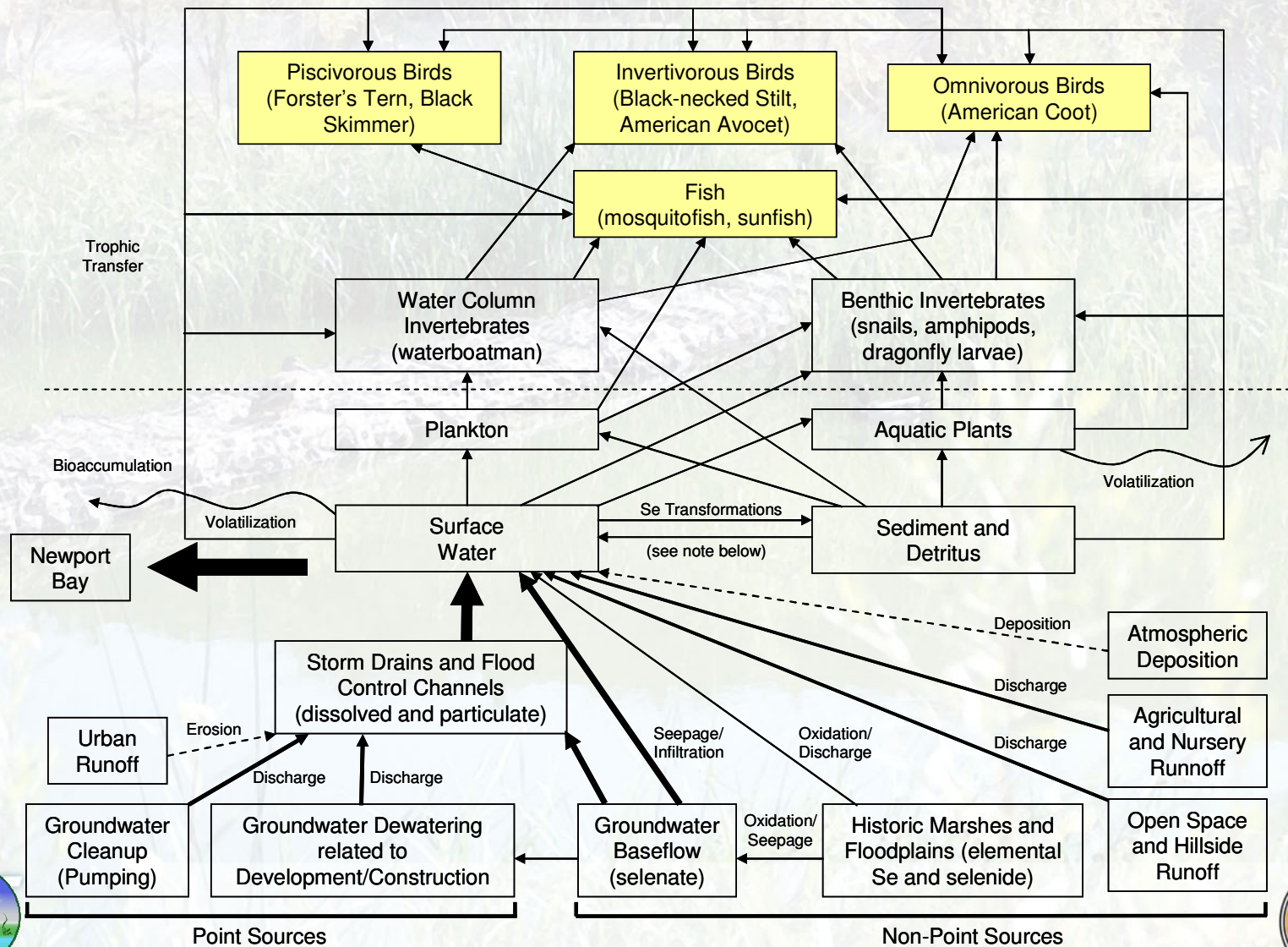
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# Se Conceptual Model

## Freshwater Creek and Wetland Habitats





# Nitrogen Stream Conceptual Model

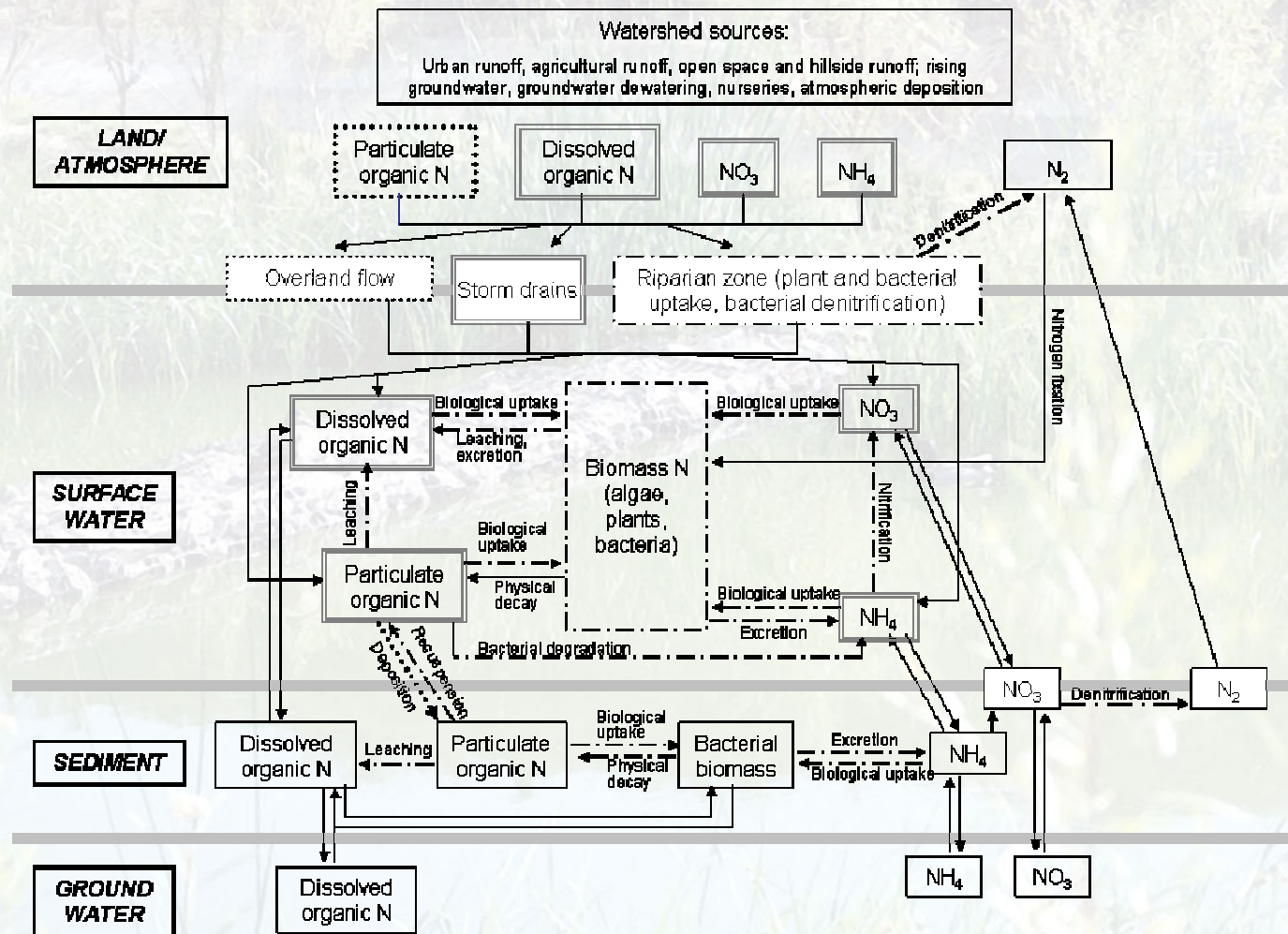


Figure Legend: High in Summer

High in Winter

Always High

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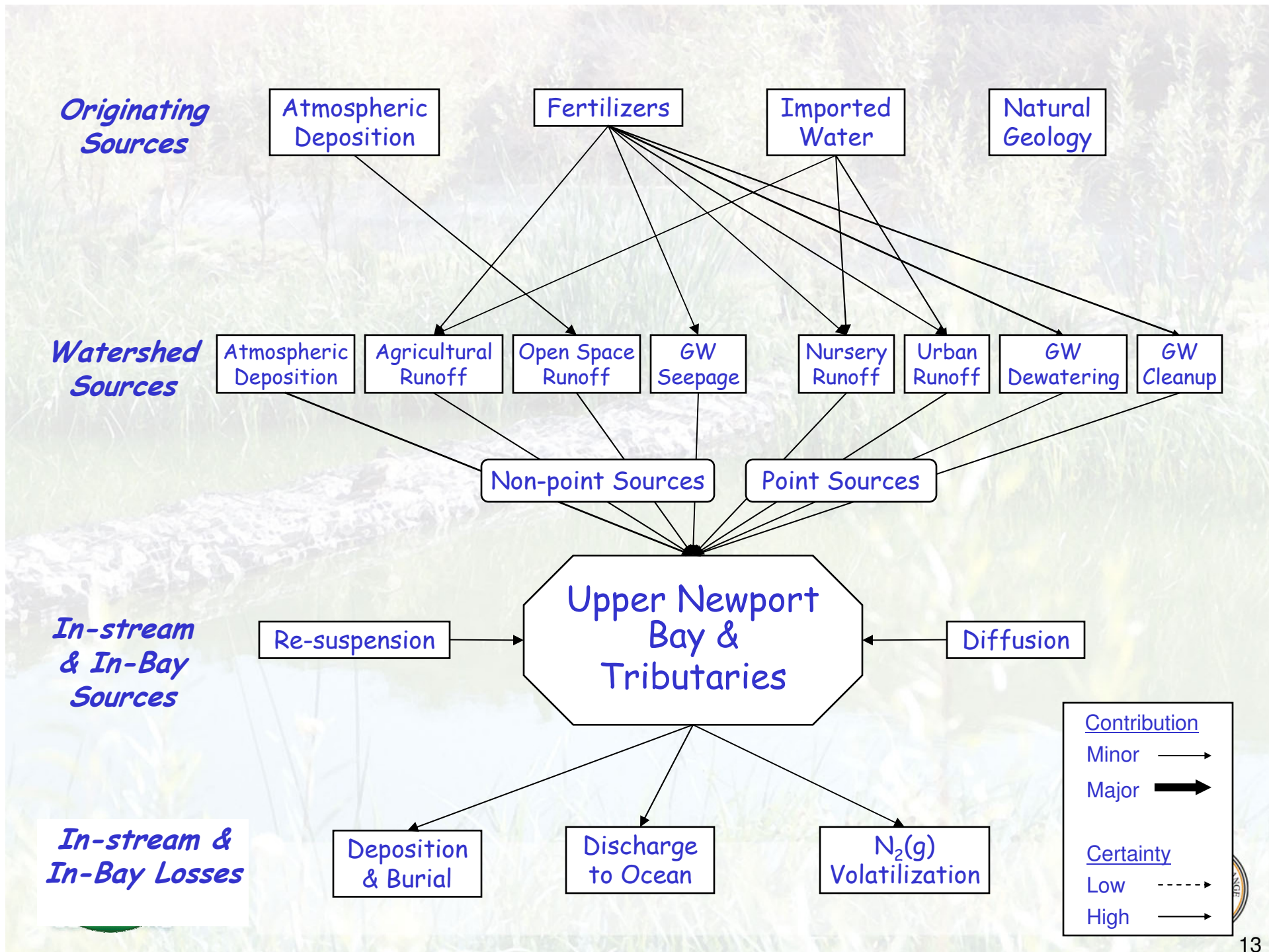


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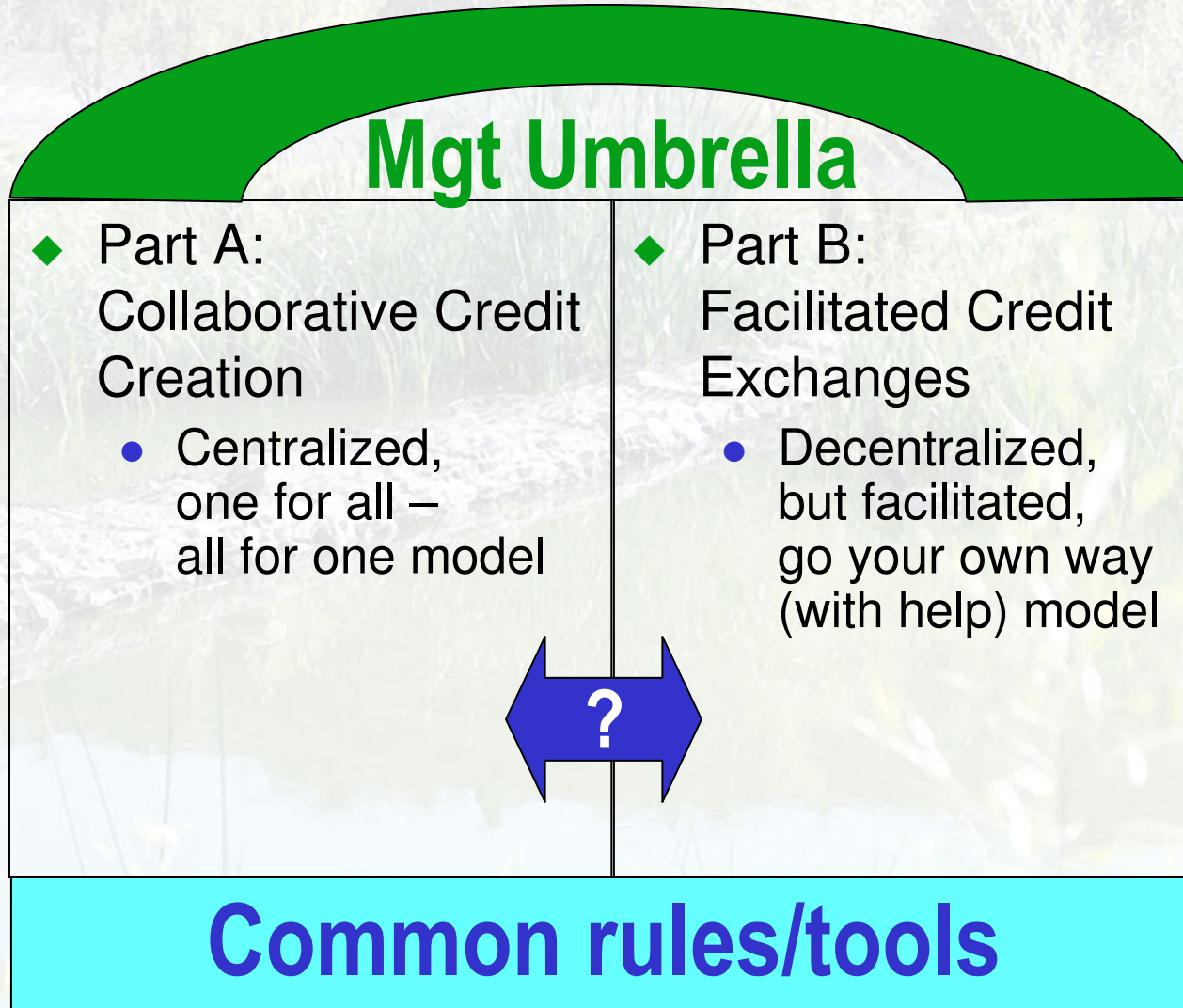
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# Trading/Offset Proposed Framework



# Five Year Work Plan (July 2005)

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# Threshold Indicators of Aquatic Life Impairment

- ◆ Based on existing scientific information
- ◆ Guidance from SWRCB 303(d) Listing Policy
- ◆ Specific to Newport Bay and watershed
- ◆ Separate thresholds for fresh and salt water
- ◆ Multiple lines of evidence: both presence of algae *and* evidence of chemical effects required to designate impairment



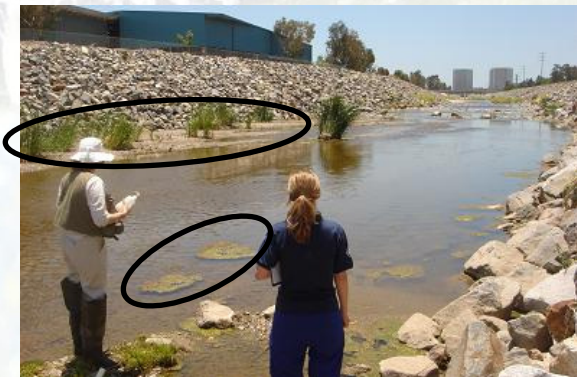


# Algal Survey: Extent and Magnitude

Annual average *less than* 150 mg/m<sup>2</sup>

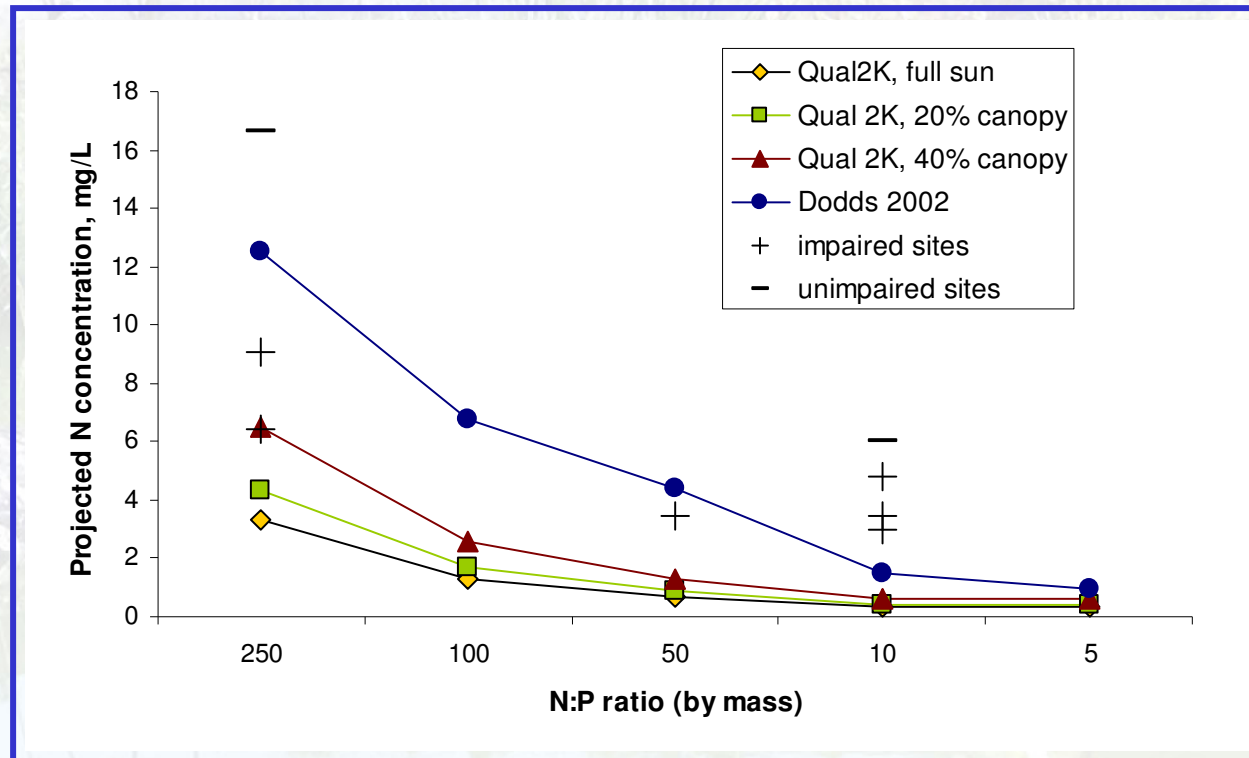


Annual average *greater than* 150 mg/m<sup>2</sup>





# Relationship Between N and Algal Biomass



**Range of Initial Predicted N Concentrations:  
0.3 – 12.5 mg/L**

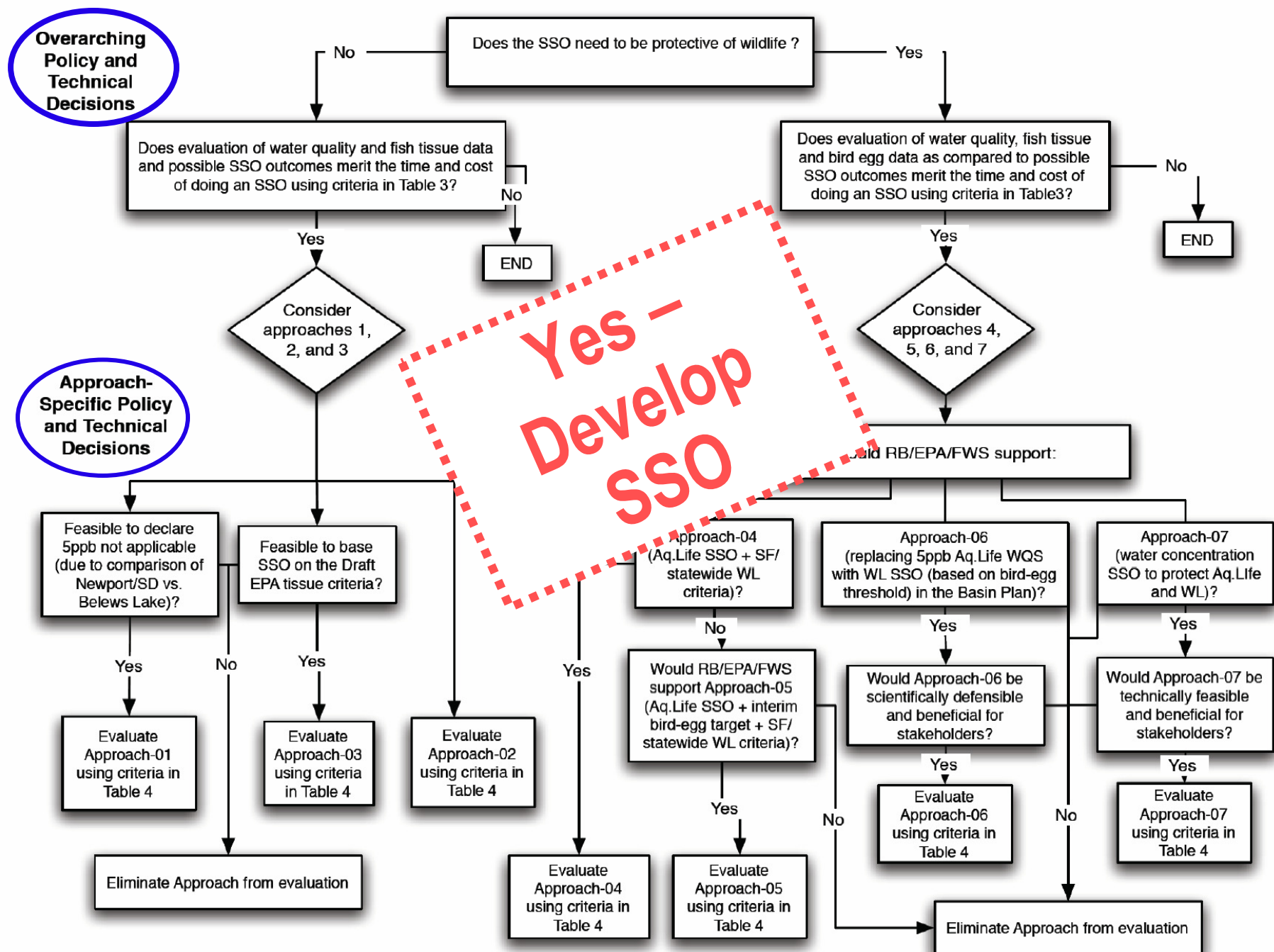


# Five Year Work Plan (July 2005)

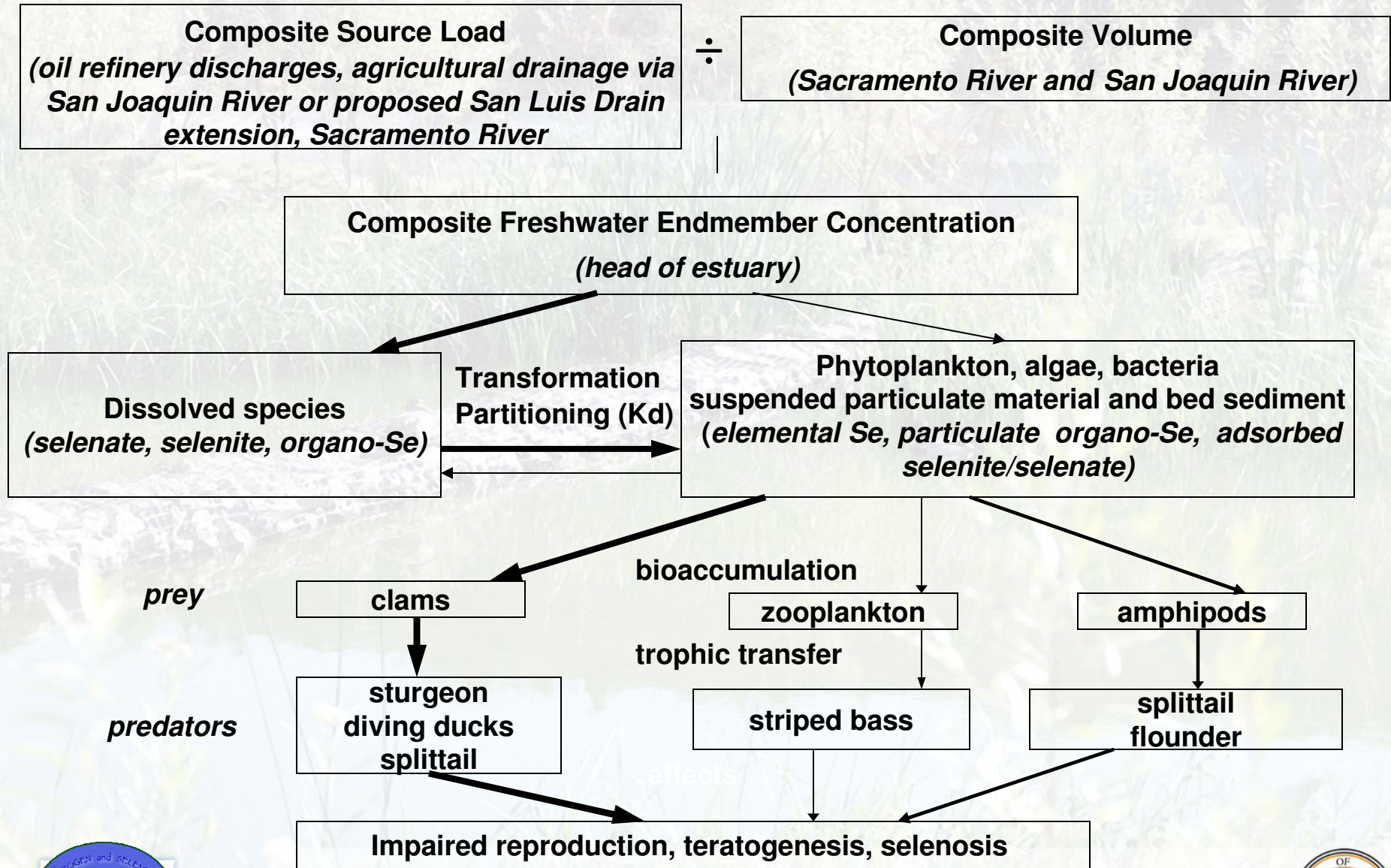
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## **Bay-Delta Selenium Model**





# Five Year Work Plan (July 2005)

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# BMP Implementation Plan

- ◆ Volume Reduction BMPs
- ◆ Implementation Plan will be developed to outline adaptive management approach
  - BMP Pilot Testing,
  - Simple Treatment Based Model
  - Provide a Schedule for Implementation
  - Estimate Costs for Implementation





# Next Steps

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# What Will We Have Accomplished?

- ◆ Working Group Relationships
- ◆ Understand Fate and Transport N & Se
- ◆ Better Understanding of Sources & Loads
  - Still need groundwater-surface water understanding/model
- ◆ Assist in TMDL Re-evaluation
- ◆ Re-evaluation of WQO/WQC
- ◆ Understanding How Trading May Occur
- ◆ Identified BMPs to be implemented
  - Development of Watershed Management Plan





# Keys to Success & Barriers

## Key to Success

- ◆ Stakeholders are at Table for Watershed
- ◆ Understand N and Se Relationship Better
- ◆ BMPs Have Been Identified for GW

## Barriers

- ◆ Need Groundwater/Surface Water Model
- ◆ BMPs are Complex and Expensive
- ◆ Implementation Timeline is Unknown
- ◆ Significant Policy Questions



**Thank You!!**

**For More Information**

**NSMP Website:**

**[ocnsmp.com](http://ocnsmp.com)**

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**Karen Cowan**

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